

WHAT IS CLAIMED IS:

1. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula I:



or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

R_1 is selected from the group consisting of $-NHC(O)Y$, where Y is C_1-C_{22} alkyl, C_2-C_{22} alkenyl, and C_2-C_{22} alkynyl;

R_2 is selected from the group consisting of $-OX$, where X is C_1-C_{22} alkyl, C_2-C_{22} alkenyl, C_2-C_{22} alkynyl; and

R_3 is phosphocholine.

2. The method of claim 1 wherein Y and X are independently C_1-C_{14} alkyl, C_2-C_{14} alkenyl, or C_2-C_{14} alkynyl.

3. The method of claim 1 wherein:

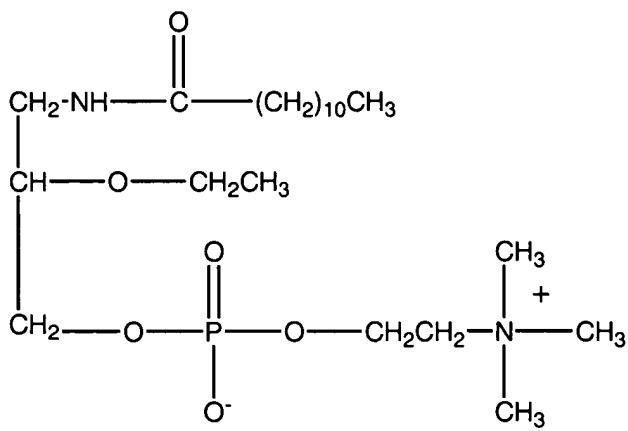
Y is $-C_{10}H_{21}$; and

X is $-CH_2CH_3$, $-CH_2CH_2CH_3$, $-CH_2CH_2CH_2CH_3$, or $-C_{10}H_{21}$.

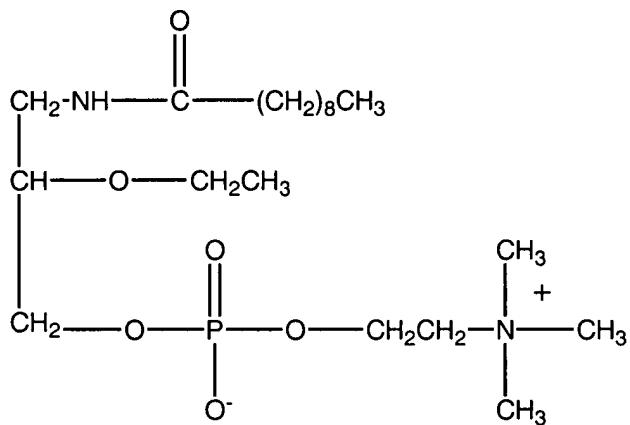
4. The method of claim 1 wherein Y is $-C_{11}H_{23}$ and X is C_1-C_5 alkyl.

5. The method of claim 1 wherein Y is $-C_9H_{19}$ and X is C_9-C_{11} alkyl.

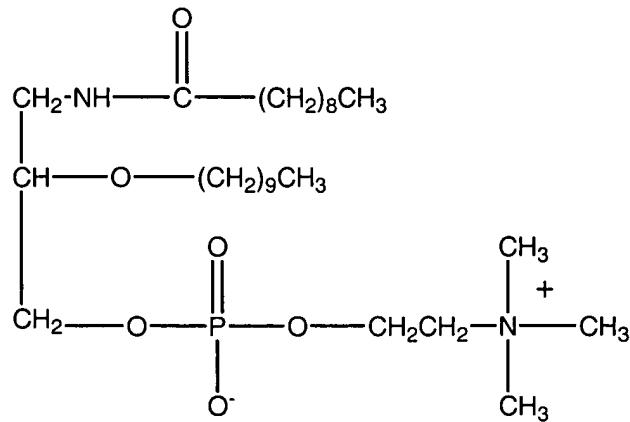
6. The method of claim 1, wherein the compound is



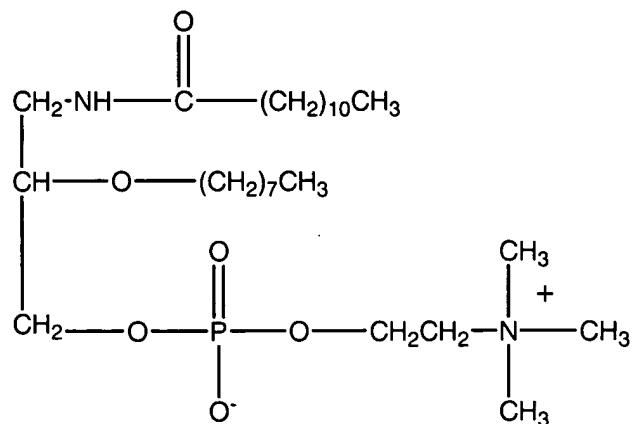
3-dodecanamido-2-ethoxypropyl-1-phosphocholine,



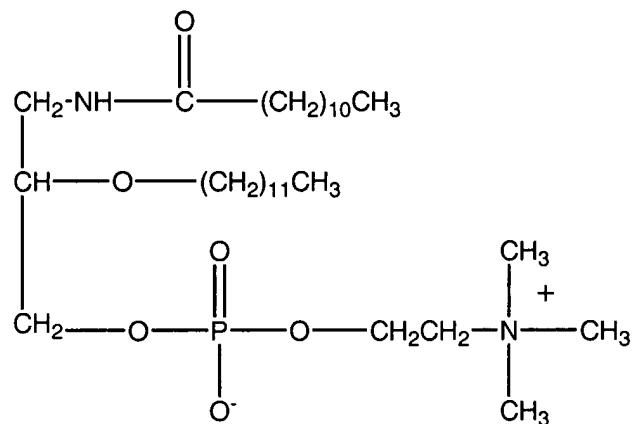
3-decanamido-2-ethoxypropyl-1-phosphocholine,



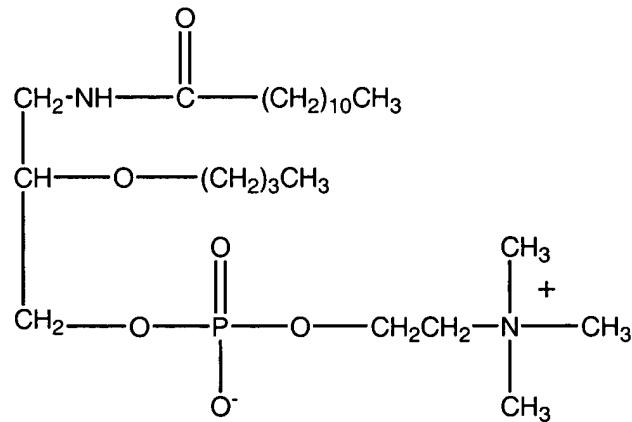
3-decanamido-2-decyloxypropyl-1-phosphocholine,



3-dodecanamido-2-octyloxypropyl-1-phosphocholine,



3-dodecanamido-2-dodecyloxypropyl-1-phosphocholine, or

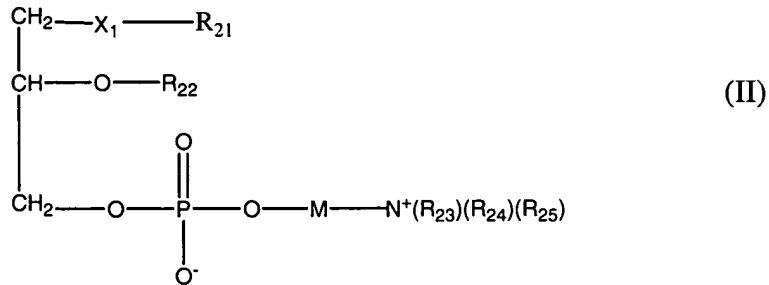


3-dodecanamido-2-butyloxy-1-phosphocholine; or a combination thereof.

7. The method of claim 1 wherein the host is a mammal.

8. The method of claim 1 wherein the host is a human.

9. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula II:



or a pharmaceutically acceptable salt or prodrugs thereof,

wherein:

M is $\text{C}_2\text{-C}_4$ alkyl;

X_1 is selected from the group consisting of $-\text{S}-$, $-\text{O}-$, $-\text{NH}-$, and $-\text{NHC(O)}-$;

R_{21} is selected from the group consisting of $\text{C}_1\text{-C}_{20}$ straight chain alkyl, $\text{C}_2\text{-C}_{20}$ straight chain alkylene containing not more than four double bonds, and aryl;

R_{22} is selected from the group consisting of $\text{C}_1\text{-C}_{20}$ straight chain alkyl, $\text{C}_2\text{-C}_{20}$ straight chain alkylene containing not more than four double bonds, and aryl; and

R_{23} , R_{24} , and R_{25} are each independently selected from the group consisting of hydrogen, methyl, ethyl, propyl, and isopropyl.

10. The method of claim 9 wherein

M is $-\text{CH}_2\text{CH}_2-$;

X_1 is $-\text{NHC(O)}-$;

R_{21} is selected from the group consisting of a $\text{C}_1\text{-C}_{16}$ straight chain alkyl and $\text{C}_2\text{-C}_{16}$ straight chain alkylene containing not more than one double bond;

R₂₂ is selected from the group consisting of a C₁-C₁₆ straight chain alkyl and C₂-C₁₆ straight chain alkylene containing not more than one double bond; and

R₂₃, R₂₄, and R₂₅ are each independently hydrogen or methyl.

11. The method of claim 9 wherein

R₂₁ is selected from the group consisting of C₁-C₁₆ straight chain alkyl and C₂-C₁₆ straight chain alkylene containing not more than one double bond; and

R₂₂ is selected from the group consisting of C₁-C₅ straight chain alkyl and C₂-C₅ straight chain alkylene containing not more than one double bond.

12. The method of claim 11 wherein R₂₁ is C₉-C₁₂ alkyl and R₂₂ is C₁-C₁₂ alkyl.

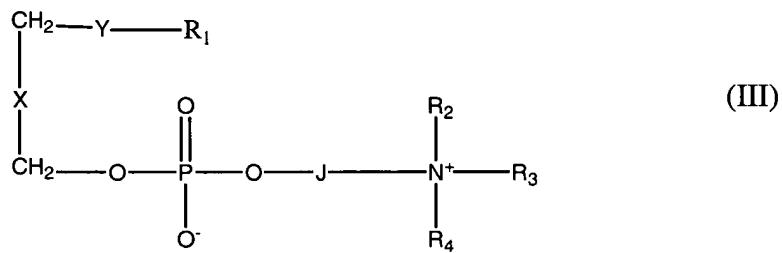
13. The method of claim 11 wherein R₂₁ is C₉-C₁₂ alkyl and R₂₂ is C₁-C₅ alkyl.

14. The method of claim 11 wherein R₂₁ is C₉-C₁₂ alkyl and R₂₂ is C₈-C₁₂ alkyl.

15. The method of claim 9 wherein the host comprises a mammal.

16. The method of claim 9 wherein the host comprises a human.

17. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula III:



or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

Y is selected from the group consisting of -S-, -O-, -NH-, -N(CH₃)-, -NHC(O)-, and -N(CH₃)C(O)-;

R₁ is selected from the group consisting of C₁-C₁₈ alkyl, C₂-C₁₈ alkenyl, C₂-C₁₈ alkynyl, and aryl;

X is a covalent bond or methylene that is optionally substituted with a hydroxyl, C₁-C₂₀ alkyl, -O-(C₁-C₂₀ alkyl), -S-(C₁-C₂₀ alkyl), -C(O)N(C₁-C₂₀ alkyl), C₂-C₂₀ alkenyl, -O-(C₂-C₂₀ alkenyl), -S-(C₂-C₂₀ alkenyl), -C(O)N(C₂-C₂₀ alkenyl), C₂-C₂₀ alkynyl, -O-(C₂-C₂₀ alkynyl), -S-(C₂-C₂₀ alkynyl), or -C(O)N(C₂-C₂₀ alkynyl);

J is a C₁-C₄ alkyl optionally substituted from one to three times with methyl or ethyl; and R₂, R₃, and R₄ are independently hydrogen or C₁-C₃ alkyl.

18. The method of claim 17 wherein:

Y is -NHC(O)-;

R₁ is C₆-C₁₈ alkyl;

X is -C(H)(O-C₁-C₁₈ alkyl)- or -C(H)(O-C₁-C₁₈ alkenyl)-;

J is -CH₂CH₂-; and

R₂, R₃, and R₄ are each methyl.

19. The method of claim 18 wherein R₁ is -C₁₁H₂₃ and X is -C(H)(O-C₁-C₅ alkyl)-or -C(H)(O-C₁-C₅ alkenyl)-

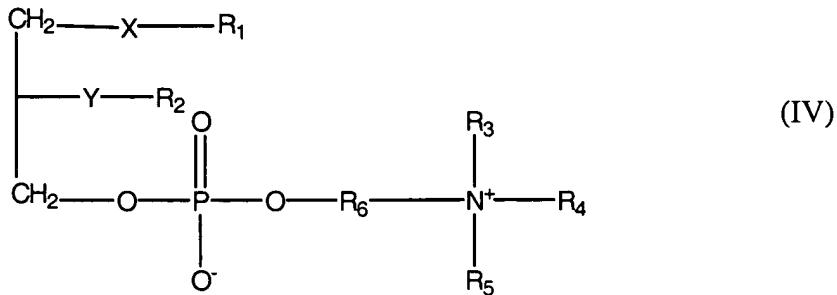
20. The method of claim 18 wherein R₁ is -C₉H₁₉ and X is -C(H)(OC₂H₅)-

21. The method of claim 17 wherein R₁ is -C₉H₁₉ and X is -C(H)(OC₁₀H₂₁)-

22. The method of claim 17 wherein the host comprises a mammal.

23. The method of claim 17 wherein the host comprises a human.

24. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula IV:



or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

R_1 is selected from the group consisting of C_1 - C_{18} alkyl, C_2 - C_{18} alkenyl, and C_2 - C_{18} alkynyl that is optionally substituted from 1 to 5 times with -OH, -COOH, oxo, amino, or aryl;

X is selected from the group consisting of $-NHC(O)-$, $-N(CH_3)C(O)-$, $-C(O)NH-$, $-C(O)N(CH_3)-$, $-S-$, $-S(O)-$, $-(SO_2)-$, $-O-$, $-NH-$, and $-N(CH_3)-$;

R_2 is selected from the group consisting of C_1 - C_{14} alkyl, C_2 - C_{14} alkenyl, and C_2 - C_{14} alkynyl that is optionally substituted from 1 to 5 times with -OH, -COOH, oxo, amino, or aryl;

Y is selected from the group consisting of $-NHC(O)-$, $-N(CH_3)C(O)-$, $-C(O)NH-$, $-C(O)N(CH_3)-$, $-S-$, $-S(O)-$, $-(SO_2)-$, $-O-$, $-NH-$, $-N(CH_3)-$, and $-OC(O)-$;

R_6 is selected from the group consisting of C_2 - C_6 alkyl; C_2 - C_6 alkenyl, and C_2 - C_6 alkynyl; and

R_3 , R_4 , and R_5 are independently methyl or ethyl, or R_3 and R_4 together form an aliphatic or heterocyclic ring having five or six ring atoms and R_5 is methyl or ethyl.

25. The method of claim 24 wherein:

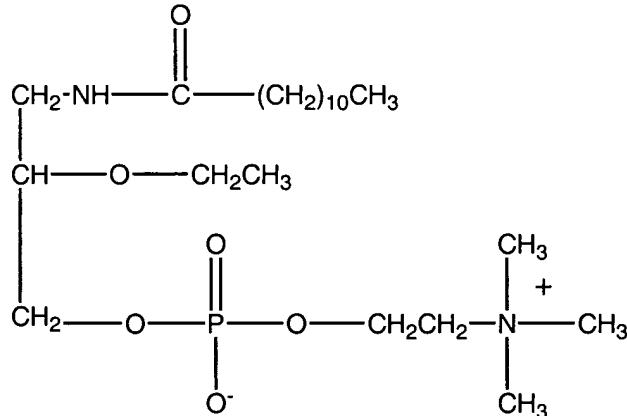
R_2 is C_1 - C_{14} alkyl, C_2 - C_{14} alkenyl, or C_2 - C_{14} alkynyl;

R₆ is -CH₂CH₂-; and

R₃, R₄, and R₅ are each independently CH₃.

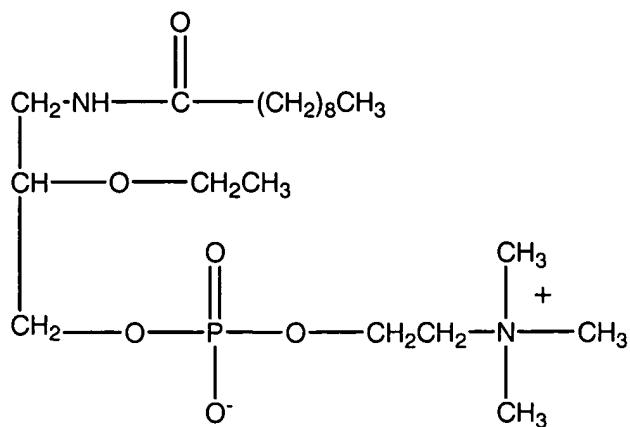
26. The method of claim 25 wherein R₂ is C₁-C₅ alkyl or C₂-C₅ alkenyl.
27. The method of claim 25 wherein R₁ is C₈-C₁₂ alkyl and R₂ is C₁-C₁₂ alkyl.
28. The method of claim 25 wherein R₁ is C₈-C₁₂ alkyl and R₂ is C₁-C₅ alkyl.
29. The method of claim 25 wherein R₁ is C₈-C₁₂ alkyl and R₂ is C₈-C₁₂ alkyl
30. The method of claim 27 wherein
 - X is -NHC(O), -N(CH₃)C(O)-, -C(O)NH-, -C(O)N(CH₃); and
 - Y is -O-, -NH-, or -N(CH₃)-.

31. The method of claim 24 wherein the host comprises a mammal.
32. The method of claim 24 wherein the host comprises a human.
33. The method of claim 24 wherein the compound comprises:



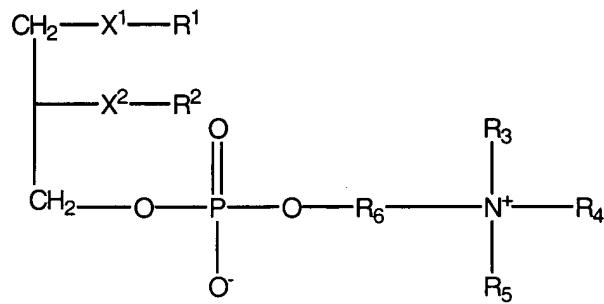
3-dodecanamido-2-ethoxypropyl-1-phosphocholine.

34. The method of claim 24 wherein the compound comprises:



3-decanamido-2-ethoxypropyl-1-phosphocholine.

35. A method for treating a host infected with RSV comprising administering an anti-RSV effective amount of a compound of Formula AA-1:



(AA-1)

or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

X¹ is -NHC(O)-;

X^2 is -O-;

R¹ is -C₁-C₂₂ alkyl;

R² is -C₁-C₂₂ alkyl;

R⁶ is -CH₂CH₂-; and

R³, R⁴, and R⁵ are methyl.

36. The method of claim 35, wherein

R¹ is -CH₃, -CH₂CH₃, -CH₂CH₂CH₃, -CH₂CH₂CH₂CH₃, -CH₂CH₂CH₂CH₂CH₃, -
(CH₂)₅CH₃, -(CH₂)₆CH₃, -(CH₂)₇CH₃, -(CH₂)₈CH₃, -(CH₂)₉CH₃, -(CH₂)₁₀CH₃, -
(CH₂)₁₁CH₃, -(CH₂)₁₂CH₃ or -(CH₂)₁₃CH₃; and

R² is -CH₃, -CH₂CH₃, -CH₂CH₂CH₃, -CH₂CH₂CH₂CH₃, -CH₂CH₂CH₂CH₂CH₃, -
(CH₂)₅CH₃, -(CH₂)₆CH₃, -(CH₂)₇CH₃, -(CH₂)₈CH₃, -(CH₂)₉CH₃, -(CH₂)₁₀CH₃, -
(CH₂)₁₁CH₃, -(CH₂)₁₂CH₃ or -(CH₂)₁₃CH₃.

37. The method of claim 36, wherein

R¹ is -(CH₂)₈CH₃, -(CH₂)₉CH₃, -(CH₂)₁₀CH₃, -(CH₂)₁₁CH₃; -(CH₂)₁₂CH₃, or -(CH₂)₁₃CH₃;

and

R² is CH₃, -CH₂CH₃, -CH₂CH₂CH₃, -CH₂CH₂CH₂CH₃, -CH₂CH₂CH₂CH₂CH₃, -
(CH₂)₅CH₃, -(CH₂)₆CH₃, or -(CH₂)₇CH₃.

38. The method of claim 36, wherein

R¹ is -(CH₂)₅CH₃, -(CH₂)₆CH₃, -(CH₂)₇CH₃, -(CH₂)₈CH₃, -(CH₂)₉CH₃, -(CH₂)₁₀CH₃, -
(CH₂)₁₁CH₃, or -(CH₂)₁₂CH₃; and

R² is -(CH₂)₆CH₃, -(CH₂)₇CH₃, -(CH₂)₈CH₃, -(CH₂)₉CH₃, -(CH₂)₁₀CH₃, -(CH₂)₁₁CH₃, -
(CH₂)₁₂CH₃, or -(CH₂)₁₃CH₃.

39. The method of claim 1, wherein the administering is orally, intravenously, parentally, intradermally, subcutaneously, topically, or by inhalation.